

## **SEALING COVER FOR A CONTAINER**

### **FIELD OF THE INVENTION**

The present invention is directed to sealing covers or lids. More particularly, the invention is directed to sealing covers for containers.

### **BACKGROUND OF THE INVENTION**

Containers are commonly used for preparing and/or storing food. Containers may be made from numerous different materials, including glass, ceramic, plastic or other suitable materials. Containers also come in many different shapes and sizes. Containers are typically provided with a cover or lid that fits over a rim surrounding an opening of the container to seal the opening to preserve foods, prevent splashing during cooking or heating, or for other uses. The cover may additionally include a vent to allow steam to escape from the container during microwave heating. Providing a vent allows steam to escape without having to remove, or partially remove, the cover. Vents typically include a hole in the cover and a stopper provided for closing and exposing the hole. The vents do not act to seal and unseal the cover from the container. Typically, the stopper is attached to the cover and is pivotable for closing and exposing the hole.

### **SUMMARY OF THE INVENTION**

According to one embodiment, there is provided a cover comprising a body portion substantially surrounded by an outer edge, the body portion having an opening therein. The cover includes a stopper that is movable between an open position and a closed position, the stopper being adapted to close the opening when in the closed position. The stopper causes a substantially air-tight seal between the cover and a container when in the closed position, and allows the cover to be removed from the container when the stopper is in the open position by releasing the air-tight seal.

In one embodiment, the stopper includes a flap having a portion of the flap removably secured to the body portion of the cover, wherein a remaining portion of the flap is removably fills the opening. The cover may further comprise an upper surface and a lower surface having an outer periphery adjacent the outer edge. A sealing ring may be mounted on a substantial portion of the outer periphery of the lower surface of

the body portion, wherein the sealing ring in combination with the stopper effects the airtight seal between the cover and the container when the opening is closed by the stopper.

In one embodiment, the cover includes a flange attached to the outer periphery of the lower surface, wherein the flange receives the sealing ring. The sealing ring may be removable from the flange. The flange may include an arm extending downwardly from the outer periphery of the cover, a first flange member extending substantially perpendicular from the arm. A second flange member may be provided extending from the arm and substantially parallel to the first flange member to form a groove between the first and second flange members, wherein the groove receives at least a portion of the sealing ring. The sealing ring may be mounted on the outer periphery of the lower surface using adhesive. The sealing ring may be mounted on an entire outer periphery of the lower surface.

A handle may be disposed in the body portion. An indentation may be provided in the body portion substantially surrounding the handle. The handle may be set within the indentation and a top surface of the handle may be substantially flush with an upper surface of the body portion of the cover. The handle may be removable from the body portion.

In one embodiment, the stopper includes a flap having a portion of the flap attached to the handle, wherein a remaining portion of the flap removably fills the opening. An indentation in the body portion may be provided substantially surrounding the handle and stopper. The handle and stopper may be within the indentation and top surfaces of the handle and the stopper may be substantially flush with an upper surface of the body portion of the cover. The handle and stopper may be removable from the body portion.

According to another embodiment, a container is disclosed. The container includes a cover having a body portion substantially surrounded by an outer edge, and a containing portion including a sidewall attached to a base, the sidewall having an inner surface. The outer edge of the cover is adapted to fit adjacent to a portion of the inner surface of the sidewall of the containing portion.

The container may further comprise a top surface and a bottom surface having an outer periphery adjacent the outer edge. A sealing ring may be mounted on a substantial

portion of the outer periphery of the bottom surface of the body portion, wherein the sealing ring effects an air-tight seal between the cover and the containing portion.

In one embodiment, a ridge may be provided on the sidewall of the containing portion, wherein the sealing ring may be adapted to engage the ridge. A flange may be attached to the outer periphery of the bottom surface, wherein the flange receives the sealing ring. The sealing ring may be removable from the flange. The sealing ring may be mounted on the outer periphery of the bottom surface using adhesive. The sealing ring may be mounted on the entire outer periphery of the bottom surface. The flange may include an arm extending downwardly from the outer periphery of the cover and a flange member extending substantially perpendicular from the arm. The sealing ring may be removably engaged with at least a portion of the flange member. The flange may include a second flange member extending from the arm and provided substantially parallel to the first flange member forming a groove between the flange members, wherein the groove removably receives at least a portion of the sealing ring. The sealing ring may be secured to the groove with adhesive.

A handle may be disposed in a top surface of the body portion. An indentation in the body portion may substantially surround the handle. The handle may be set within the indentation and a top surface of the handle may be substantially flush with the top surface of the body portion of the cover.

In one embodiment, the container may include an opening in the body portion of the cover, and a stopper movable between an open position and a closed position, the stopper adapted to close the opening in the closed position, and expose the opening in the open position. The stopper may cause a substantially air-tight seal between the cover and the containing portion when in the closed position, and may allow the cover to be removed from the container when the stopper is in the open position by releasing the air-tight seal.

The stopper may include a flap having a portion of the flap removably secured to the body portion of the cover, wherein the remaining portion of the flap may removably fill the opening. The cover may include a top surface and a bottom surface having an outer periphery adjacent the outer edge of the cover. A sealing ring may be mounted on a substantial portion of the outer periphery of the bottom surface of the body portion, wherein the sealing ring in combination with the stopper effects the air-tight seal

between the cover and the inner surface of the containing portion when the opening is closed by the flap. A flange may be attached to the outer periphery of the lower surface, wherein the flange may receive the sealing ring. A ridge may be provided on the sidewall of the containing portion, wherein the outer edge of the cover is adapted to engage the ridge.

In another embodiment, a container is disclosed. A cover has a body portion substantially surrounded by an outer edge, the body portion defining an opening. A stopper and handle combination are provided on the body portion, the stopper movable between an open and a closed position and the stopper adapted to close the opening in the closed position. A containing portion includes a sidewall attached to a base, the sidewall having an inner surface. The outer edge of the cover is adapted to fit against a portion of the inner surface of the sidewall of the containing portion, and the stopper is adapted to cause an air-tight seal between the cover and the containing portion when in the closed position, and allows the cover to be removed from the containing portion when the stopper is in the open position by releasing the air-tight seal.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other objects and advantages will be more fully appreciated from the following detailed description when taken in connection with the following drawings. It is to be understood that the drawings are for the purpose of illustration only and are not intended as a definition of the limits of the invention.

In the drawings, in which like numerals represent like elements:

FIG. 1 is a perspective view of one embodiment of a container according to the invention;

FIG. 2 is a perspective view of the container of FIG. 1 with the cover removed;

FIG. 3 is a side view of the cover shown in FIGS. 1 and 2;

FIG. 4 is an exploded view of the container of FIGS. 1 and 2;

FIG. 5 is a cross-sectional view of the container along line 5-5 of FIG. 1;

FIG. 6 is an exploded view of one embodiment of the handle, stopper and a portion of the cover; and

FIG. 7 is a perspective view of an exemplary embodiment of the handle and stopper according to the invention.

DETAILED DESCRIPTION

Referring to FIG. 1, an exemplary embodiment of a container 10 is illustrated comprising a containing portion 12 and a cover or lid 14. In FIG. 1, the cover 14 is sealed onto the containing portion 12. The container 10 may be used for a variety of applications, such as the preparation or storage of food or other items. According to one example, the containing portion 12 is made of a ceramic material, and the cover 14 is made of plastic. However, the container 10 is not so limited, and both the containing portion 12 and the cover 14 may be made of any suitable material, and may be made of the same or different materials. When the cover 14 is placed on the containing portion 12, an outer edge 16 (FIG. 2) of the cover 14 fits against an inside edge 18 (FIG. 2) of the containing portion 12, thereby sealing the container 10 shut. The cover 14 may include a handle 20 for placing the cover 14 on and removing the cover 14 from the containing portion 12. The cover 14 may feature a vent 22 having an opening 24 sealable by a stopper 26. When the stopper 26 closes or fills the opening 24, it causes an air-tight seal between the cover 14 and containing portion 12. Removal of the stopper 26 from the opening 24 releases the air-tight seal and allows the cover 14 to be removed merely by lifting the cover 14 away from the containing portion 12. The vent 22 also allows steam to escape during heating or cooking without requiring complete or partial removal of the cover 14. Various features and characteristics of various embodiments of the container 10 will be described in more detail below.

FIG. 2 illustrates a view of the container 10 of FIG. 1 with the cover 14 removed from the containing portion 12. The containing portion 12 includes a sidewall 28 attached to and surrounding a base 30 forming a containing space 32. The sidewall 28 has an inner surface 34 and an outer surface 36. An upper edge 38 of the sidewall 28 forms a surrounding rim 40 and at least portions of the rim may extend substantially perpendicular to the sidewall 28. The containing portion 12 may additionally include handles 42. For example, as shown, the rim 40 extends on two opposing ends 44 and 46 of the containing portion 12 to form the handles 42 to facilitate lifting the container 10. Although the containing portion 12 is illustrated throughout this disclosure as being substantially rectangular, the containing portion 12 is not so limited, and may be any desired shape. For example, the containing portion 12 may be round, square, oval or any other shape. Moreover, the containing portion 12 may be any desired depth. The shape

of the container 10 is immaterial, provided only that the containing portion 12 and cover 14 have complementary shapes such that the cover 14 will mate against a portion of the inside surface 34 of the containing portion 12. As shown, the containing portion 12 is substantially rectangular with the two opposed ends 44 and 46 and two elongated sides 48 and 50 connecting the opposed ends 44 and 46. The inner surface 34 of the sidewall 28, spaced from the rim 40, may include a ridge 52 that facilitates sealing the cover 14 to the containing portion 12.

As shown in FIGS. 2-4, the cover 14 comprises a body portion 54 substantially surrounded by the outer edge 16. The outer edge 16 of the cover 14 is adapted to fit adjacent a portion of the inner surface 34 of the sidewall 28 of the containing portion 12, such that the cover 14 itself sits inside the opening of the containing portion 12. As illustrated, the cover 14 is substantially rectangular to mate with the illustrated containing portion 12. The cover 14 includes two cover ends 58 and 60 and two cover sides 62 and 64 connecting the cover ends 58 and 60. The cover 14 additionally has an outer surface 66 and an inner surface 68. When the cover 14 is sealingly engaged with the containing portion 12, the inner surface 68 acts to enclose the containing space 32 of the containing portion 12. The body portion 54 of the cover 14 may define the vent 22 with the opening 24 sealable by the stopper 26. The vent 22 may be particularly useful when the container 10 is used for microwave reheating or cooking of food in the container 10. As discussed above, the provision of the vent 22 allows steam to escape without having to remove, or partially remove, the cover 14 from the containing portion 12.

The opening 24 may be provided anywhere on the body portion 54 of the cover 14. As shown, the opening 24 is provided centered between the first and second sides 62 and 64, but is not centered between the two opposed ends 44 and 46 of the cover 14. The opening 24 extends through the cover from the outer surface 66 fully through to the inner surface 68. As shown, the opening 24 is round. It should be appreciated, however, that the opening 24 may have any desired shape or size so long as it is within the body portion 54 of the cover 14. The stopper 26 is provided to engage the edge of the opening 24 thereby sealing the opening 24. The stopper 26 features an extension 70 that mates with the opening 24 and has an end 72 that fits through the opening 24 with an interference-fit. An extending rim 74 may be provided surrounding the end 72 of the

extension 70 to provide the interference-fit. The stopper 26 may be a separate piece from the cover 14, as shown, or formed unitarily with the cover 14. If the stopper 26 is separate from the cover 14, the stopper 26 may be removably connected to the cover 14 and/or may be pivotally attached to the cover 14 to close the opening 24 or remove the extension 70 from the opening 24. It is preferable to have the stopper 26 removably connected with the cover 14 so that the stopper 26 will not be easily lost.

The stopper 26 is movable between an open position (FIG. 2) and a closed position (FIG. 1). FIG. 5 is a cross-sectional view of the container 10 and cover 14, showing engagement of the cover 14 with the containing portion 12. As illustrated in FIG. 5, a sealing ring 76 adjacent the inner surface 34 of the containing portion 12 and adjacent the outer edge 16 of the cover 14, may be adapted to engage the ridge 52 provided on the inner surface 34 of sidewall 28 of the containing portion 12. The sealing ring 76 will be discussed in more detail below. When the stopper 26 is in the open position, the substantially air-tight seal between the cover 14 and the containing portion 12 is released and the cover 14 is removable from the containing portion 12, as shown in FIG. 2, by lifting cover 14 in an upwardly direction. In order to close and seal the container 10, the cover 14 may be placed such that the outer edge 16 of the cover 14 fits adjacent the inner edge 18 of the inner surface 34 of the containing portion 12, preferably against the ridge 52. The stopper 26 may then be moved to the closed position, as shown in FIGS. 1 and 5, such that the extension 70 closes and blocks the opening 24, causing the substantially air-tight seal between the cover 14 and the containing portion 12. Thus, the vent 22 acts to seal and unseal the cover 14 from the containing portion 12. Of course, it will be appreciated that the opening 24 may be closed by the stopper 26 prior to mating the cover 14 with the containing portion 12 and still provide a seal between the cover 14 and the containing portion 12.

Referring to FIGS. 1, 2 and 4, the cover 14 may also include the cover handle 20. As shown, the stopper 26 and handle 20 may be made as a one-piece unit which will be discussed in more detail below. However, it will be appreciated that the stopper 26 and handle 20 could be separate pieces. The cover handle 20 may be formed unitarily with the cover 14 or, as shown in FIG. 4, as a separate piece removable from the cover 14. The cover handle 20 may have any suitable shape. The handle 20 is preferably an oval shape that may be grasped by a user's fingers to hold the cover 14. As shown, the handle

20 is located in the center of the body portion 54 of the cover 14. It will be appreciated that the handle 20 may be placed in any desired location on the cover 14. As shown in FIGS. 4-6, the cover 14 may further include an indentation 78 surrounding the handle 20 to facilitate gripping the handle 20. Referring to FIGS. 3 and 5, a top surface 80 of the handle 20 may be substantially flush with an outer surface 66 of the body portion 54 of the cover 14 such that the handle 20 resides within the indentation 78.

Referring now to FIGS. 3 and 4, the inner surface 68 of the cover 14 has an outer periphery 82 that is adapted to fit adjacent the inner surface 34 of the containing portion 12. The sealing ring 76 may be mounted on a substantial portion of the outer periphery 82 of the inner surface 68 of the body portion 54. The sealing ring 76 is substantially flat and shaped to mate against the inner surface 34 of the sidewall 28 - for example, against the ridge 52 as shown in FIG. 5. A bottom surface 84 of the sealing ring 76 rests against the ridge 52. The sealing ring 76 includes an inner edge 86 defining a hollow center 88 and an outer edge 90. The sealing ring 76 assists in providing an air-tight seal between the cover 14 and the containing portion 12 when the opening 24 is closed by the stopper 26.

In the illustrative embodiment, the sealing ring 76 is mounted on the entire outer periphery 82 of the inner surface 68 of the cover 14. As shown, a flange 92 is attached to the outer periphery 28 of the inner surface 68 to receive the sealing ring 76. The flange 92 includes an arm 94 extending downwardly from the outer periphery 82 and a flange member 96 extending substantially perpendicular from the arm 94. As illustrated, two flange members 96 are provided extending perpendicular to the arm 94. The flange members 96 are substantially parallel to one another. A groove 98 is provided between the flange members 96 and receives the inner edge 86 of the sealing ring 76 to removably locate the sealing ring 76 to the cover 14. Removing the sealing ring 76 facilitates cleaning the container. Alternatively, the sealing ring 76 may be attached to the outer periphery 82, the flange 92 or to the groove 98 by any suitable manner, including use of adhesive. The sealing ring 76 may be made of any suitable material. Preferably, the sealing ring 76 is made of a flexible rubber or plastic material to provide the air-tight seal between the cover 14 and the containing portion 12.

The illustrated handle 20 and stopper 26 combination will now be discussed in greater detail. Referring to FIGS. 6 and 7, the stopper 26 and the cover handle 20 are



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formed as a one-piece unit. The combination may be formed unitarily with the cover 14 or attached to the cover 14 in any suitable manner. The stopper 26 has a portion 100 attached to the cover handle 20. The stopper 26 further includes a flap 102 extending from portion 100. The extension 70 extends from a lower surface 103 of the flap 102 and is engagable with the edge of the opening 24 to close or fill the opening 24. As discussed above, it will be appreciated that the handle 20 and stopper 26 may be formed from at least two separate elements either unitarily with the cover or attached to the cover in any suitable manner. As shown in FIG. 6, the one-piece handle 20 and stopper 26 combination is removable from the cover 14. The body portion 54 of the cover 14 may include holes 104a and 104b, as well as the opening 24. As shown, the holes 104a and 104b may be provided on a raised portion 105 provided within the indentation 78. The additional holes 104a and 104b may receive portions 106 extending from a base 108 of the handle 20 to secure the handle 20 and stopper 26 to the cover 14.

FIG. 7 illustrates one embodiment of a removable handle 20 and stopper 26 combination. In this embodiment, the handle includes projections 110a and 110b extending from the base 108 recessed within the handle 20 and designed to mate with corresponding holes 104a and 104b in the cover 14 to removably secure the handle and stopper combination to the cover 14. The handle 20 includes sidewall 112 surrounding the recessed base 108 of the handle 20 and provides side surfaces 114 for gripping the handle 20. As shown in FIG. 6, the raised portion 105 of the cover 14 interfits within the recessed base 108 of the handle 20 when the projections 110a and 110b are inserted through the holes 104a and 104b of the raised portion 105. Typically, an interference-fit is provided between the holes 104a and 104b and the projections 110a and 110b. The holes 104a and 104b and projections 110a and 110b are round. However, the holes and projections may be any suitable shape so long as they mate with one another. Moreover, it will be appreciated that one or more corresponding hole and projection sets could be provided to removably secure the handle 20 and/or stopper 26 to the cover 14. It will also be appreciated that the handle and stopper may be attached to the cover in any suitable manner other than that illustrated.

Having thus described various illustrative embodiments and examples, variations and modifications may be apparent to those of skill in the art. For example, the handle and/or stopper may be permanently attached to the cover 14. Such variations and

- modifications, including altering the shape or material of the container, or providing additional structures adapted for use in combination with the container, for example a roasting rack, are intended to be included in this disclosure which is by way of example only and not intended to be limiting. The scope of the invention should be determined
- 5 from proper construction of the appended claims and their equivalents.

What is claimed is:

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